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1   <u>Router plugins: a software architecture for next-generation routers</u>
Dan Decasper, Zubin Dittia, Guru Parulkar, Bernhard Plattner
February 2000 IEEE/ ACM Transactions on Networking (TON),   Volume 8 Issue 1
Publisher: IEEE Press
Full text available: 📄 <u>pdf(530.34 KB)</u>  Additional Information: <u>full citation, references, cited by, index terms</u>

Bibliometrics:  Downloads (6 Weeks): 24,   Downloads (12 Months): 104,   Citation Count: 7

Keywords: communication system routing, communication system security, internet,
modular computer systems

2   <u>Trajectory sampling for direct traffic observation</u>
N. G. Duffield, Matthias Grossglauser
June 2001 IEEE/ ACM Transactions on Networking (TON),   Volume 9 Issue 3
Publisher: IEEE Press
Full text available: 📄 <u>pdf(251.55 KB)</u>   Additional Information: <u>full citation, abstract, references, cited by, index terms</u>

Bibliometrics:  Downloads (6 Weeks): 14,   Downloads (12 Months): 58,   Citation Count: 16

Traffic measurement is a critical component for the control and engine ering of
communication networks. We argue that traffic measurement should make it possible
to obtain the spatial flow of traffic through the domain, i.e., the paths followed by
packets ...

Keywords: Hash functions, Internet traffic measurement, packet sampling, traffic
engineering

3   <u>Adaptive resource management for flow-based IP/ATM hybrid switching systems</u>
Hao Che, San-qi Li, Arthur Lin
October 1998 IEEE/ ACM Transactions on Networking (TON),   Volume 6 Issue 5
Publisher: IEEE Press
Full text available: 📄 <u>pdf(570.85 KB)</u>  Additional Information: <u>full citation, references, index terms</u>

Bibliometrics:  Downloads (6 Weeks): 4,   Downloads (12 Months): 21,   Citation Count: 0

Keywords: adaptive resource management, cut-through switching, flow cache

management, flow classification, flow-based IP/ATM hybrid switching

4  Predicting resource usage and estimation accuracy in an IP flow measurement
   collection infrastructure
   Nick Duffield, Carsten Lund
   October 2003 IMC '03: Proceedings of the 3rd ACM SIGCOMM conference on Internet
                 measurement
   Publisher: ACM

   Full text available: pdf(362.83 KB)   Additional Information: full citation, abstract, references, cited by, index
                                                                  terms

   Bibliometrics:  Downloads (6 Weeks): 5,   Downloads (12 Months): 33,   Citation Count: 8

   This paper describes a measurement infrastructure used to collect detailed IP traffic
   measurements from an IP backbone. Usage, i.e, bytes transmitted, is determined from
   raw NetFlow records generated by the backbone routers. The amount of raw data is ...

   Keywords: bandwidth, estimation, sampling, variance

5  Algorithms and estimators for accurate summarization of internet traffic
   Edith Cohen, Nick Duffield, Haim Kaplan, Carsten Lund, Mikkel Thorup
   October 2007 IMC '07: Proceedings of the 7th ACM SIGCOMM conference on Internet
                 measurement
   Publisher: ACM

   Full text available: pdf(355.01 KB)   Additional Information: full citation, abstract, references, index terms

   Bibliometrics:  Downloads (6 Weeks): 15,   Downloads (12 Months): 73,   Citation Count: 0

   Statistical summaries of traffic in IP networks are at the heart of network operation and
   are used to recover information on the traffic of arbitrary subpopulations of flows. It is
   therefore of great importance to collect the most accurate and informative ...

   Keywords: data streams, ip flows, netflow, network management, sketches,
   subpopulation queries

6  Sketching unaggregated data streams for subpopulation-size queries
   Edith Cohen, Nick Duffield, Haim Kaplan, Carsten Lund, Mikkel Thorup
   June 2007 PODS '07: Proceedings of the twenty-sixth ACM SIGMOD-SIGACT-SIGART
               symposium on Principles of database systems
   Publisher: ACM

   Full text available: pdf(311.89 KB)   Additional Information: full citation, abstract, references, index terms

   Bibliometrics:  Downloads (6 Weeks): 7,   Downloads (12 Months): 124,   Citation Count: 1

   IP packet streams consist of multiple interleaving IP flows. Statistical summaries of
   these streams, collected for different measurement periods, are used for
   characterization of traffic, billing, anomaly detection, inferring traffic demands,
   configuring ...

   Keywords: IP flows, data streams, sketches, subpopulation size

7  Flow sampling under hard resource constraints
   Nick Duffield, Carsten Lund, Mikkel Thorup
   June 2004 SIGMETRICS '04/ Performance '04: Proceedings of the joint international

conference on Measurement and modeling of computer systems
Publisher: ACM

Full text available: pdf(246.84 KB)    Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics:  Downloads (6 Weeks): 11,   Downloads (12 Months): 70,   Citation Count: 8

Many network management applications use as their data traffic volumes differentiated by attributes such as IP address or port number. IP flow records are commonly collected for this purpose: these enable determination of fine-grained usage of network ...

Keywords: IP flows, sampling, variance reduction

8   Bitmap algorithms for counting active flows on high speed links
Cristian Estan, George Varghese, Mike Fisk
October 2003 IMC '03: Proceedings of the 3rd ACM SIGCOMM conference on Internet
            measurement
Publisher: ACM

Full text available: pdf(330.81 KB)    Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics:  Downloads (6 Weeks): 14,   Downloads (12 Months): 79,   Citation Count: 18

This paper presents a family of bitmap algorithms that address the problem of counting the number of distinct header patterns (flows) seen on a high speed link. Such counting can be used to detect DoS attacks and port scans, and to solve measurement ...

Keywords: counting flows, network traffic measurement

9   Flow sampling under hard resource constraints
Nick Duffield, Carsten Lund, Mikkel Thorup
June 2004 ACM SIGMETRICS Performance Evaluation Review,   Volume 32 Issue 1
Publisher: ACM

Full text available: pdf(246.84 KB)    Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics:  Downloads (6 Weeks): 11,   Downloads (12 Months): 70,   Citation Count: 8

Many network management applications use as their data traffic volumes differentiated by attributes such as IP address or port number. IP flow records are commonly collected for this purpose: these enable determination of fine-grained usage of network ...

Keywords: IP flows, sampling, variance reduction

10  Wire speed packet classification without tcams: a few more registers (and a bit of
logic) are enough
Qunfeng Dong, Suman Banerjee, Jia Wang, Dheeraj Agrawal
June 2007 SIGMETRICS '07: Proceedings of the 2007 ACM SIGMETRICS international
            conference on Measurement and modeling of computer systems
Publisher: ACM

Full text available: pdf(289.06 KB)  Additional Information: full citation, abstract, references, index terms

Bibliometrics:  Downloads (6 Weeks): 25,   Downloads (12 Months): 229,   Citation Count: 0

Packet classification is the foundation of many Internet functions such as QoS and

security. A long thread of research has proposed efficient software-based solutions to this problem. Such software solutions are attractive because they require cheap ...

Keywords: packet classification, rule cache, rule evolution

11 Estimating flow distributions from sampled flow statistics
Nick Duffield, Carsten Lund, Mikkel Thorup
August 2003 SIGCOMM '03: Proceedings of the 2003 conference on Applications, technologies, architectures, and protocols for computer communications
Publisher: ACM

Full text available: pdf(333.29 KB)    Additional Information: full citation, abstract, references, cited by, index terms

Bibliometrics:  Downloads (6 Weeks): 9,   Downloads (12 Months): 91,   Citation Count: 22

Passive traffic measurement increasingly employs sampling at the packet level. Many high-end routers form flow statistics from a sampled substream of packets. Sampling is necessary in order to control the consumption of resources by the measurement operations. ...

Keywords: IP flows, maximum likelihood estimation, packet sampling

12 Wire speed packet classification without tcams: a few more registers (and a bit of logic) are enough
Qunfeng Dong, Suman Banerjee, Jia Wang, Dheeraj Agrawal
June 2007 ACM SIGMETRICS Performance Evaluation Review, Volume 35 Issue 1
Publisher: ACM

Full text available: pdf(289.06 KB)    Additional Information: full citation, abstract, references, index terms

Bibliometrics:  Downloads (6 Weeks): 25,   Downloads (12 Months): 229,   Citation Count: 0

Packet classification is the foundation of many Internet functions such as QoS and security. A long thread of research has proposed efficient software-based solutions to this problem. Such software solutions are attractive because they require cheap ...

Keywords: packet classification, rule cache, rule evolution

13 Bitmap algorithms for counting active flows on high-speed links
Cristian Estan, George Varghese, Michael Fisk
October 2006 IEEE/ACM Transactions on Networking (TON), Volume 14 Issue 5
Publisher: IEEE Press

Full text available: pdf(952.17 KB)    Additional Information: full citation, abstract, references, index terms

Bibliometrics:  Downloads (6 Weeks): 12,   Downloads (12 Months): 89,   Citation Count: 0

This paper presents a family of bitmap algorithms that address the problem of counting the number of distinct header patterns (flows) seen on a high-speed link. Such counting can be used to detect DoS attacks and port scans and to solve measurement problems. ...

Keywords: counting distinct elements, traffic measurements

14 Lightweight application classification for network management
Hongbo Jiang, Andrew W. Moore, Zihui Ge, Shudong Jin, Jia Wang

August 2007 INM '07: Proceedings of the 2007 SIGCOMM workshop on Internet network
           management
Publisher: ACM
Full text available: pdf(120.19 KB)   Additional Information: full citation, abstract, references, index terms

Bibliometrics: Downloads (6 Weeks): 16,   Downloads (12 Months): 77,   Citation Count: 0

Traffic application classification is an essential step in the network management process
to provide high availability of network services. However, network management has
seen limited use of traffic classification because of the significant overheads ...

Keywords: flow classification, internet traffic, traffic identification

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